12/06/04

AF/2816

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: **Cecchi, et al.** Serial No. **09/903,239** Filed: **07/11/01** For: **"CMOS Low Voltage High-Speed Differential Amplifier"**	Group Art Unit: **2816** Examiner: **NGUYEN, LONG T**

BRIEF IN REPLY TO THE EXAMINER'S ANSWER

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

December 3, 2004

Sir,

Pursuant to 37 C.F.R. 1.192, Applicant submits the following Brief in Reply to the Examiner's Answer:

As a preliminary matter, Applicant concurs with the presumption raised in the Answer that there are no related appeals or interferences. The Board may note that a statement to this effect was included in the original Appeal Brief.

ARGUMENT

Regarding the substantive issues raised in the Answer, Applicant replies as follows:

1. The hindsight reconstruction employed did not comply with the requirements of *McLaughlin*

The Answer cites *In re McLaughlin*, 443 F.2d 1392, 170 U.S.P.Q. 209 (CCPA 1971) to support the proposition that, regarding hindsight reconstruction, "so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made and does not include knowledge gleaned only from applicant's disclosure, such a reconstruction is proper." *In re McLaughlin* at 1313. [Ans., p. 9] However, while the general desirability of increased linearity in amplifiers was know, *none* of the cited references indicate that use of passive biasing elements in an amplifier would make the amplifier more linear. This information, which would be *critical* in making a decision to use resistors rather than transistors, is only be found in the specification of the present application. Thus, the Examiner's argument supporting the hindsight reconstruction of the claimed invention from the cited references *did* "include knowledge gleaned only from applicant's disclosure," which under *McLaughlin* is an improper hindsight reconstruction. The Answer does *not* support the assertion that the combination of the Zhang and the Sasaki references resulted from a proper hindsight reconstruction and, therefore, Applicant believes that the rejection should be withdrawn.

2. The Answer reasserts functional equivalence, but Applicant has presented evidence of *in*-equivalence, which was not rebutted in the record.

Regarding the alleged functional equivalence between an always-on transistor and a resistor, none of the cited references show a transistor being replaced by a resistor, nor even that a transistor *can* be replaced by a resistor. Sasaki shows only that when a transistor is in an always-on state, it can be modeled as a resistor. Applicant has clearly shown that the model shown in Sasaki is a limited model that does not apply to a differential amplifier of the type claimed. Applicant has presented evidence that this alleged equivalence is incorrect in the context of a differential amplifier, but the Answer responds only by reasserting that "the Sasaki reference teaches that when a transistor is on, it is functionally equivalent to a resistor." Applicant has presented evidence showing that when used in a differential amplifier, the V-I curve of the biasing transistors in a

differential amplifier (which are presumably always-on) is not the straight line that would be true of the V-I curve of a resistor. Thus, they are *not* functionally equivalent. However, the Answer does not include any evidence to the contrary, nor does it even respond to this argument. The Answer does not support the assertion that a resistor and a transistor are functionally equivalent in the context of a differential amplifier and, therefore, Applicant believes that the rejection should be withdrawn.

3. There is no suggestion in the prior art that would predict the success of the present invention.

Finally, the Answer does demonstrate an expectation of an advantage resulting from combining the cited references to achieve the claimed invention. The mere fact that a passive resistor is linear does support the conclusion that an amplifier in which the biasing transistors were replaced by resistors would also become more linear. Nothing in the record provides the link between use of resistors biasing elements and the advantageous result of the amplifier becoming more linear. While the expectation of some advantage is the strongest rationale for combining references, the alleged expectation should be demonstrated "expressly or impliedly in the prior art or drawn from a convincing line of reasoning based on established scientific principles." [MPEP §2144] However, with respect to the issue of lack of motivation to combine the references, the Answer states merely that "the motivation/suggestion was provided as the advantage of the passive resistor is that the passive resistor is inherently linear.... Therefore, the use of the passive resistor will improve overall linearity of the amplifier." [Ans., p. 9] Critically, however, while the increased linearity of amplifiers is generally recognized as being desirable, and while it is known that passive resistors are inherently linear, *nothing* in the record indicates that use of an inherently linear resister as a biasing element in an amplifier will result in the amplifier becoming more linear. Therefore, the combination of the Zhang and Sasaki references does not give rise to the necessary expectation of advantage required to infer a suggestion or motivation to combine these references. For this reason, it was improper to combine these references and, therefore, the rejection should be withdrawn.

CONCLUSION

For the reasons enumerated above, Applicant believes that the rejections to the claims were in error and requests that all claims be allowed.

No addition fees are believed due. However, the Commissioner is hereby authorized to charge any additional fees which may be required, including any necessary extensions of time, which are hereby requested, to Deposit Account No. 502666.

12/3/04
Date

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Bryan W. Bockhop

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